

**Montana Board of Oil and Gas Conservation  
Environmental Assessment**

**Operator:** Whiting Oil and Gas Corporation  
**Well Name/Number:** Johnson 21-25H  
**Location:** NE NW Section 25 T30N R56E  
**County:** Roosevelt, **MT;** **Field (or Wildcat)** W/C (Bakken Horizontal)

**Air Quality**

(possible concerns)

Long drilling time: No, 30 to 40 days drilling time.

Unusually deep drilling (high horsepower rig): No, triple derrick drilling rig to drill a single lateral Bakken Formation well test to 19,134' MD/9,775' TVD. Well will be first drilled vertically to 9945' to the Three Forks Formation and then plugged back to 9,254' and kicked off for a horizontal Bakken Formation test.

Possible H<sub>2</sub>S gas production: H<sub>2</sub>S gas production possibility is slight.

In/near Class I air quality area: No Class I air quality area nearby.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under rule 75-2-211.

Mitigation:

- ☒ Air quality permit (AQB review)
- ☐ Gas plants/pipelines available for sour gas
- ☐ Special equipment/procedures requirements
- ☐ Other: \_\_\_\_\_

Comments: No special concerns – using triple derrick drilling rig to drill to 19,134' MD/9,775' TVD. Well will be first drilled vertically to 9945' to the Three Forks Formation and then plugged back to 9,254' and kicked off for a horizontal Bakken Formation test.

**Water Quality**

(possible concerns)

Salt/oil based mud: Yes, oil based invert drilling fluids will be used on the mainhole. The horizontal lateral will be drilled with brine water. The surface hole will be drilled with freshwater and freshwater drilling fluids.

High water table: No, no high water table anticipated.

Surface drainage leads to live water: No, nearest drainage is Lost Creek about 1/8 of a mile to the southwest and an unnamed ephemeral tributary to Lost Creek about 1/4 of a mile to the north from this location.

Water well contamination: None all water wells are further than 1 mile from this location. Depth of these water wells are 37' to 140' in depth.

Porous/permeable soils: No, sandy clay soils.

Class I stream drainage: No class I stream drainages in this area.

Mitigation:

- ☒ Lined reserve pit
- ☒ Adequate surface casing
- ☐ Berms/dykes, re-routed drainage
- ☐ Closed mud system
- ☐ Off-site disposal of solids/liquids (in approved facility)
- ☐ Other: \_\_\_\_\_

Comments: 2000' of surface casing cemented to surface adequate

to protect freshwater zones and to cover the base of the Fox Hills Formation.

### **Soils/Vegetation/Land Use**

(possible concerns)

Stream crossings: No, stream crossings anticipated.

High erosion potential: No, small cut, up to 3.6' and small fill, up to 6.3', required.

Loss of soil productivity: None, location to be restored after drilling well, if well is nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: No, a large wellsite 400'X440' location size required.

Damage to improvements: No surface use is a cultivated field.

Conflict with existing land use/values: Slight

Mitigation

   Avoid improvements (topographic tolerance)

   Exception location requested

  X Stockpile topsoil

   Stream Crossing Permit (other agency review)

  X Reclaim unused part of wellsite if productive

   Special construction methods to enhance reclamation

   Other \_\_\_\_\_

Comments: Access to location will be over existing county road, #2046. A short access of 63' will be built off the county road into location. Oil based invert drilling fluids will be recycled. Completion fluids will be hauled to a Class II Disposal. Drilling cuttings and mud solids will be fly ashed in the lined pit and buried with subsoil cover. No special concerns.

### **Health Hazards/Noise**

(possible concerns)

Proximity to public facilities/residences: Nearest residences are about 1 7/8 of a mile to the west and about 2 miles to the east from the location. The town of Froid, Montana is about 5 miles to the west from this location.

Possibility of H<sub>2</sub>S: H<sub>2</sub>S potential is slight.

Size of rig/length of drilling time: Triple drilling rig/short 30 to 40 days drilling time.

Mitigation:

  X Proper BOP equipment

   Topographic sound barriers

   H<sub>2</sub>S contingency and/or evacuation plan

   Special equipment/procedures requirements

   Other: \_\_\_\_\_

Comments: Adequate surface casing and operational BOP should mitigate any problems. No concerns.

### **Wildlife/recreation**

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): Medicine Lake National Wildlife Refuge and Medicine Lake Wilderness boundary is about 6 miles to the north and 7 miles to the northwest from this location.

Proximity to recreation sites: Medicine Lake National Wildlife Refuge is about 6 miles to the north from this location.

Creation of new access to wildlife habitat: No, surface use is a cultivated field.  
Conflict with game range/refuge management: No  
Threatened or endangered Species: Species identified as threatened or endangered are the Pallid Sturgeon, Interior Lease Tern, Whooping Crane and Piping Plover.  
Candidate species is the Sprague's Pipit. MTFWP Natural Heritage Tracker website indicates species of concerns are Grasshopper Sparrow, Sprague's Pipit, Golden Eagle, Great Blue Heron, Burrowing Owl, Ferruginous Hawk, Chestnut-collared Larks, Sedge Wren, Yellow Rails, Bobolink, Whooping Crane, Long-billed Curlew, Sharp-tailed Grouse.  
Mitigation:  
☐ Avoidance (topographic tolerance/exception)  
☐ Other agency review (DFWP, federal agencies, DSL)  
☐ Screening/fencing of pits, drillsite  
☐ Other: \_\_\_\_\_  
Comments: The drilling of this well should have no effect on the Medicine Lake National Wildlife Refuge. Well will be drilled in the winter. The surface ownership is private land and surface use is cultivated surface lands. No concerns

---

### **Historical/Cultural/Paleontological**

(possible concerns)  
Proximity to known sites None identified.  
Mitigation  
☐ avoidance (topographic tolerance, location exception)  
☐ other agency review (SHPO, DSL, federal agencies)  
☐ Other: \_\_\_\_\_  
Comments: On private cultivated surface lands. No concerns.

---

### **Social/Economic**

(possible concerns)  
☐ Substantial effect on tax base  
☐ Create demand for new governmental services  
☐ Population increase or relocation  
Comments: No concerns.

---

### **Remarks or Special Concerns for this site**

19,134' MD/9,775' TVD Bakken Formation horizontal well test. No concerns.

---

### **Summary: Evaluation of Impacts and Cumulative effects**

No significant long term impacts expected, some short term impacts will occur.

---

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): Steven Sasaki  
(title:) Chief Field Inspector  
Date: February 4, 2011

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website  
(Name and Agency)  
Water wells in Roosevelt County  
(subject discussed)  
February 3, 2011  
(date)

US Fish and Wildlife, Region 6 website  
(Name and Agency)  
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES  
MONTANA COUNTIES, Roosevelt County  
(subject discussed)

February 3, 2011  
(date)

Montana Natural Heritage Program Website (FWP)  
(Name and Agency)  
Heritage State Rank= S1, S2, S3, T30N R56E  
(subject discussed)

February 3, 2011  
(date)

If location was inspected before permit approval:

Inspection date: February 4, 2011

Inspector: Schmidt

Others present during inspection: None